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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/518,143

08/02/2005

Jochen Dick

P04,0501

6780

26574

7590

01/23/2009

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EXAMINER

MURDOCH, CRYSTAL A

ART UNIT

PAPER NUMBER

2628

MAIL DATE

DELIVERY MODE

01/23/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/518,143	Applicant(s) DICK ET AL.	
	Examiner Crystal Murdoch	Art Unit 2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 October 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 October 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

I. Response to Arguments

Applicants' response to the last Office Action, mailed 29 April 2008 has been entered and made of record.

Applicant's arguments filed 21 October 2008 have been fully considered but they are not persuasive.

Vining is relied upon for teaching,

"The rendering step 80 occurs rapidly and interactively, thus giving the user the ability to 'fly' through the volume of data. The direction of 'flight' is controlled by the computer mouse 27 through directional pointing of the cursor, and the speed (both backwards and forwards) is controlled by pressing buttons on the computer mouse 27. The speed of interactive three-dimensional rendering produces a 'virtual reality' environment and allows the user to examine the image data in a manner that is analogous to real endoscopy.

"The path (camera coordinates) of each simulated flight can be recorded and used in a 'playback' mode to retrace the flight path. Individual three-dimensional scenes (views, images) may also be recorded (stored) on the computer like photographs. The geometric representation of the wireframe model 16 of the colon and the volume dataset used to create the wireframe model are stored, at step 78 of FIG. 5, on digital audio tape (DAT) or, preferably, on read/write optical discs. Each simulated 'flight' through the colon can be recorded on VHS videotape on a video recorder 30 for archival purposes at step 90 of FIG. 1. Each flight may be recorded for later review by, for example, gastroenterologists and surgeons (See Vining: Col. 13, Line 52 - Col. 14, Line 7)."

Applicant argues that,

"...if the Examiner is assuming this recording is for any purpose other than playback on the same computer in which the original image rendering occurred, the Examiner is reading much more into this passage than is actually present in the Vining disclosure, and Applicants respectfully submit the Examiner's reading of this passage in Vining has been colored by the Examiner first having the benefit of reading the disclosure of the present Applicants (See Remarks: Page 5, second full paragraph)."

Art Unit: 2628

Examiner notes that the computer in which the original image rendering of Vining occurred is not the only machine capable of accessing data stored in a VHS medium. If the fly through of Vining were stored in RAM, then it would be stored in a memory with the purpose of playback on the same computer in which the original image rendering occurred, but storage on any other removable storage device, such as VHS, can be accessed by any machine equipped with an appropriate reading device, such as a VHS player.

Applicant also argues that,

"... the storage of the wire frame model is not a teaching to store the image data united with the special instructions for visualization thereof, and the statement in the Vining reference to generate a video tape is storage of *only* the image data, i.e., the image data of the 'flight.' A video tape merely records image data in whatever form the image data are supplied to the video tape, and there are no "instructions" embodied on the video tape. The video tape simply causes the image data that are recorded thereon to be presented in exactly the same manner, but the video recorder does not require any 'instructions' to do so (See Remarks: Page 6, first paragraph)."

The special instructions, as required by the claim, correspond to the direction of flight controlled by the computer mouse through directional pointing of the cursor and the speed of the flight controlled by pressing buttons on the computer mouse, as disclosed by Vining in column 13, lines 54-57. The image data is united with controlling movements of the user (special instructions) and the flight is recorded onto a VHS for playback. The special instructions must be recorded with the image data

to result in a fly through; otherwise a static image would be recorded on the VHS.

Examiner further notes that the “second computer processor” is “separate from said first computer process or with the visualization software...” Therefore the visualization software and execution thereof is not required for the image data and special instructions to be viewed on the second computer.

Finally, as to Applicant’s remark that the creation of a video tape, as recited by Vining, would be replayed at a video recorder, not at a second computer processor, Examiner notes that an appropriate VHS reading device is required to view the contents of a VHS tape. This device performs the necessary signal processing of the data stored on the video tape in order to view the contents of the video tape, and is therefore reasonably interpreted to be the second computer processor.

II. Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

A. Claims 4-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Art Unit: 2628

Claim 4 recites "...a data carrier generator operated by said processor that generates a data carrier configured for use in a second computer processor..." It is unclear whether said processor is intended to refer to the first computer processor, the second computer processor, or another processor.

III. Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Art Unit: 2628

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

A. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hilbel et al. (Hilbel, T. et al.; "Advantages of a Cardiac DICOM Network Server/Writer for Viewing and Permanent CD-R Archiving of Cardiovascular X-Ray Angiography Images;" 2000; IEEE Computers in Cardiology; Pages 649-652, herein referred to as Hilbel.), in further view of Guido et al. (Guido et al.; "3-D Reconstruction of the Ventricular Dynamic Shape from the Density Profiles of Biplane Angiocardigraphic Image Sequences;" 25-28 September 1994; Computers in Cardiology; IEEE; Pages 193-196, herein referred to as Guido.), and in further view of Vining (US Patent Number 5,782,762).

Regarding independent claim 4, Hilbel teaches a device for cross-platform and data-specific visualization of a data record, comprising:

Art Unit: 2628

- A first computer processor (See Hilbel: Page 649, under “2. Methods,” wherein the system includes two 450 MHz processors) supplied with a data record containing medical image data (See Hilbel: Page 649, under “2. Methods,” wherein 512 x 512 grey scale images are the image data.);
- A data memory, accessible by said first computer processor, in which said first computer processor causes said medical image data to be stored (See Hilbel: Page 649, under “2. Methods,” DICOM network server);
- A display in communication with said first computer processor (See Hilbel: Page 650, Figure 1, the monitor image and the remote viewing blocks.);
- Visualization software accessible by said first computer processor for use by said first computer processor to generate a visualization at said display of said image data stored in said data memory (See Hilbel: Page 649, right column, lines 19-21, wherein the network server software includes viewing capabilities.);
- A data carrier generator operated by said processor that generates a data carrier configured for use in a second computer processor, separate from said first computer processor with the visualization software, causing said medical image data to be visualized when said

data carrier is used in said second computer processor (See Hilbel: Page 649, right column, lines 19-21, CD-R writing functionality.)).

Though Hilbel teaches using medical imaging devices including x-ray systems, echo ultrasound systems, nuclear cardiology systems, CT, MRI, to obtain cardiovascular angiography images, Hilbel does not expressly suggest that the medical images obtained from such devices includes 3D medical images. Nevertheless, Guido is cited for reconstructing 3-D volume images of the left or right ventricle from biplane angiocardiographic image sequences obtained from modalities such as ECG-gated MRI or Cine-CT (See Guido: Page 193, first paragraph under “1. Introduction”). It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to have used the 3-D reconstructed images, as taught by Guido, with the system of Hilbel, because Guido expressly suggests that diagnostically significant 3-D ventricular contraction patterns require volume images (See Guido: Page 193, first paragraph under “1. Introduction”).

Hilbel also does not expressly disclose:

- A user interface in communication with said processor allowing a user to enter special instructions for execution of said visualization software that alter the visualization of the 3D image data by the

visualization software compared to execution of the visualization software without the special instructions; and

- Storing said special instructions united with said 3D medical image data; or
- Image data to be visualized with said altered visualization when said data carrier is used in another computer.

Vining is cited for allowing a user to control an interactive fly-through of an organ of interest (See Vining: Col. 13, Lns. 52-61). Specifically, Vining teaches a user interface in communication with a processor allowing a user to enter special visualization instructions to change the visualization of the rendered organ (See Vining: Col. 13, Lns. 52-61, “The rendering step 80 occurs rapidly and interactively, thus giving the user the ability to ‘fly’ through the volume of data. The direction of ‘flight’ is controlled by the computer mouse 27 through directional pointing of the cursor, and the speed (both backwards and forwards) is controlled by pressing buttons on the computer mouse 27. The speed of interactive three-dimensional rendering produces a ‘virtual reality’ environment and allows the user to examine the image data in a manner that is analogous to real endoscopy.”).

Furthermore, Vining teaches recording (storing) the path of the camera coordinates for each simulated flight, which can be played back at a later

Art Unit: 2628

time (See Vining: Col. 13, Ln. 62 – Col. 14, Ln. 7). It is noted that the recorded flight is reviewed by, for example, a gastroenterologist or surgeon (See Vining: Col. 14, Lns. 5-7). Therefore, Vining also teaches storing the special instructions with the 3D medical image data such that an altered visualization can be viewed by another on any station capable of accessing the recorded data.

It would have been obvious to have allowed a user to control view of the 3D medical image, as taught by Vining, to view the medical images, as taught by Hilbel and modified by Guido, because Vining suggests that interactive 3D rendering produces a "virtual reality" environment analogous to real endoscopy, which provides advantages for the person interacting with the 3D model, as well as the users who view the recorded flight, for diagnosing various conditions afflicting the organ represented by the 3D data.

Regarding claim 5, the rationale of claim 4 is incorporated herein. Vining teaches the first computer processor operates said data carrier generator to cause at least a portion of said special instructions to be embodied in the generated data carrier in unalterable form (See Vining: Cols. 13-14, Lns. 62-7, respectively, wherein the recorded flight is stored.).

Regarding claim 6, as it depends from claim 4, Hilbel teaches said data carrier generator is a CD burner, and wherein the generated data carrier is a CD (See Hilbel: Page 649, right column, lines 19-21, wherein CD-R writing functionality must be accomplished by a CD burner.).

IV. Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Crystal Murdoch whose telephone number is (571) 270-1043. The examiner can normally be

reached on Mon. - Fri. 10:00 am to 6:30 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kee Tung can be reached on (571) 272-7794. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Crystal Murdoch/

Examiner, Art Unit 2628

/Kee M Tung/

Supervisory Patent
Examiner, Art Unit 2628